Entrepreneurship Education

Jonathan Bainée

BAINÉE J. (2013), "Entrepreneurship education", in Elias G. Carayannis (Ed.), *Encyclopedia of Creativity, Invention, Innovation, and Entrepreneurship*, Springer, pp.649-354.

Main text:

Entrepreneurship and, thus, small- and middlesized firms (SMEs) have had a growing interest for the past two decades, from the academic world as well as from public authorities. This interest is part of many economic changes. In particular, technological change and the increasing incidence of innovation in most developed countries have reduced the importance of the size of the companies in the industry and favored the development of entrepreneurial activities. In addition, globalization would have dragged the comparative advantages of North American and European countries toward knowledge-based activities, while the "knowledge-based economy" would be relatively more conducive to entrepreneurship and to SMEs.

At the European level, the Lisbon Agenda (2000) confirms the significance of innovation as a driver of change in the economic growth of tomorrow. In this perspective, entrepreneurship can be considered as one of the main levers to operate, especially since it is part of specific contemporary dynamics. First, researchers in economics highlight the involvement of a growing number of active SMEs in the innovation process, particularly in the case of clusters and competitiveness clusters. Moreover, the increase rate of unemployment during the 2000s, also fueled by economic and financial crisis that begun in 2007, led governments of many countries to ease the creation of business or to promote self-entrepreneurship, in order to induce agents to create their own jobs. In addition, developed economies coped with the aging of their populations, including company leaders, whose business will have to find a buyer who could well manage them. Furthermore, a transmission of small business on five results on a bankruptcy filing within 6 years in France or in Canada.

The issues in terms of ability to manage the creation, transition, and business development are primordial, both in their qualitative and quantitative dimension. It is in this context, conducive to new needs of knowledge, that emerge entrepreneurship teachings designed to inspire and enable individuals to start and to grow entrepreneurial ventures. They can be addressed in two steps. First, a historical approach will show how teachings in entrepreneurship have evolved in their implementation based on a double dynamic of empowerment and "complication" of training programs in entrepreneurship, which seems structured around the controversy over the ability to learn to undertake business or initiate the risk culture. Second, practical teaching methods of entrepreneurship will be analyzed, making sure to highlight the multifaceted reality of innovative approaches and actions through an international benchmark conducted by the PIMREP (ParisTech Innovation Management Research and Education Program) network (PIMREP 2010, 2011) (▸ Higher Education and Innovation).

(I). The story of a controversy: can we train to entrepreneurship?

Historically, Myle Maces has provided the first entrepreneurship courses in Harvard in 1947 (Katz 2003). However, the 1970s mark the true genesis of a plethora of actions that affects other schools: high schools, universities (schools of business and engineering), and centers of entrepreneurship (ibid.), both nationally and internationally, starting by Anglo-Saxon cultured countries. This expansion is fueled by accreditation bodies of academic programs that enhance the efforts to encourage entrepreneurship in the design of programs, from the mid-1990s (Adcroft et al. 2004). During this particularly prolific period, two significant trends have come together to shape entrepreneurship education aswe knowit nowadays. Firstly, it is a process of empowerment of entrepreneurship training programs: "entrepreneurship in universities has so far been developed as an add-on to business education, first as an elective course, then more courses, and finally as a concentration, major or program" (Vesper 1999). Secondly, teaching programs are subject to growing complexity, in terms of teaching through theoretical approaches and in

terms of broadening perspectives. According to this interpretative framework, it is possible to distinguish several periods that stand out by their approach to entrepreneurship, which seem to be structured around the controversy over the faculty and the opportunity to learn to undertake business or to initiate the culture of risk.

"Entrepreneurs cannot be manufactured, only recognised"

In early youth of entrepreneurship education, it has been mainly treated around the issue of business creation. The teachings are based primarily on the testimony of successful business entrepreneurs (▸ Entrepreneur; Fiet 2000) with the aim to share E 650 Entrepreneurship Education meaningful experiences of business creation and to highlight the elements of success of these success stories. Learn from experiences through analogies, even though each business creation is – by definition – specific, may seem paradoxical. It is this gap that interferes in a series of skeptical researchers against such teaching practices and critical of the ability to train in entrepreneurship. Most of the arguments are based on the idea that the concept of entrepreneurship education refers both to the teaching of know-how that are objectifiable and to teaching of skills (▸ Entrepreneurial Capability and Leadership). They cover two levels of analysis. The first relates to the figure of the entrepreneur himself, which economic literature has long strived to shape: attracted by risk-taking andmarked by the need for achievement, it stands out for others by his taste for independence and deviance to the familiar and established. In this context, Chaharbaghi and Willis (1998) argue that "entrepreneurs cannot be manufactured, only recognised." The second criticism concerns the deterministic and contingent dimensions of testimonies and more globally, of the overall teaching methods mobilized. Some authors suggest that entrepreneurship takes a pattern of behavior that is rooted within a specific context and is isolatedwithin that context, whereasAdcroft, Willis, and Dhaliwal (2004) state that "the entrepreneur being in the right place at the right timemay involve elements of judgement but also

involves elements of serendipity." As a consequence, entrepreneurship has long been considered as non-teachable because it cannot result froman optimized and infinitely reproducible approach.

"Entrepreneurship is not an innate quality, but a discipline of mind and action"

It is interesting to note that these criticisms are the seeds of a radical change in approaches to the issue of entrepreneurship in the 2000s. Indeed, beyond several empirical studies validating the specific value of entrepreneurship training, it seems to be largely in response to the criticism that academics undertake to enrich the educational treatment of entrepreneurship. The latter is more complex and therefore wins the groundwork for a separate discipline: "entrepreneurship is not an innate quality, but a discipline of mind and action that can be the appanage of a great number of students if only we train them" (Santi 2006). In any case, entrepreneurial skills must allow students to face a new problem by drawing on a heritage of knowledge and by reconstructing from them the elements necessary for the exploration of new solutions, although they take place in a complex and dynamic environment. The process that initiates such a change of mind – which will be only slightly challenged later – goes through a drastic evolution in the way we apprehend entrepreneurship, at the crossroads of several factors. On the one hand, the shared sense that entrepreneurship education should be divided into two approaches, both through action on the individual behaviors of students to stimulate innovative initiative and autonomy necessary for its development, that through the transmission of theoretical (and methodological) corpus necessary to analyze the essential elements of trends extension or, conversely, discontinuous elements. On the other hand, a process of empowerment of training curricula for entrepreneurship is coupled with programs that are getting more and more complex, in terms of theorization and in terms of broadening perspectives.

Multiple dynamics overlapped and fertilized entrepreneurship education

During the 2000s, trainings in entrepreneurship are subject to multiple dynamics that overlap and fertilize. The first of these consists in promote a balance between theoretical and practical lessons, which greatly contributed to the empowerment and to the recognition of the entrepreneurship education. The purpose of such theoretical approaches, known as theory-based education (Fiet 2000), was to build a consistent and structured framework to maximize the probability of success for entrepreneurs. Specifically, they mobilize concepts and theories that have a clear applied and explanatory nature, such as agency theory, resource theory, or the economics of transaction costs (ibid.). Beyond the theoretical knowledge deepening that mainly concerns business schools, entrepreneurship trainings drastically expand the range of topics covered, as the legal aspects (idea protection), technical aspects (new product development, technological innovation), organizational aspects, marketing aspects, and especially the financial aspects (▸ Business Project; ▸ Angel Investors; ▸ Business Incubator) and individual stimulation (negotiation, leadership). Also, the entrepreneurship courses have not kept out of the profound mutations of pedagogical logic, since treatment of these last two themes went hand in hand with the shift from a passive pedagogy, in which instruction is designed as an "information delivery," to an active approach in which the purpose is to make the learner an actor of learning, which is referred to as experiential learning. This type of teachings is based primarily on computer and behavioral simulations or on creativity techniques (mind mapping, divergent thinking, brainstorming, or lateral thinking).

So far, transformations of entrepreneurship education have been drawn in broad strokes. It should be noted that they vary in space, in addition to vary over time. Indeed, if Solomon, Duffy, and Tarabishy (2002) find that business plan, case studies, and traditional teachings were still dominant educational tools in entrepreneurship education in the early 2000s, there have beenmutations since then, both in terms of depth, that enlargement of views, or in teaching

approaches. In this landscape renewed, what are the novelties concerning entrepreneurship education? Does the generalization of these developments have given rise to a standardization process of training in entrepreneurship? Some of the answers and lines of thought based on an international benchmark on training in innovation management led by the ParisTech Innovation Management Education Research (PIMREP) can be provided.

(II) How far have we advanced on the learning curve for teaching entrepreneurship? Findings of an international benchmark

The PIMREP network was set up at the end of 2008 and encompasses many French high schools which belong to the ParisTech network (http://www.paristech.fr/index.php/eng/). After a study in 2009 on training in innovation in ParisTech schools, the PIMREP conducted an international benchmark in 2010–2011 in the same field and that is useful here. The aim was to identify trends and foster experience sharing between the members of the network and faculties abroad. The scope of this benchmark has covered eight institutions, including business schools (HEC Montreal, NCCU), technological institutes/universities (TU Munich, ETH Zurich, KTH, KAIST), and comprehensive universities (NUS, Aalto University). This selection demonstrates a commitment to observe the most innovative teaching practices on innovation and entrepreneurship (▸ Creative Pedagogy) and also intends to embrace a broad spectrum of contexts and of cultures in order to measure their relative importance on teaching approaches adopted. Each of these institutions has been visited and has been subjected to a questionnaire structured around a specific grid analysis. Fromthis one, several trends have been identified. Training in entrepreneurship requires diverse teaching models that range fromthe acquisition of academic knowledge to learning that recreate a context of thought and action that are close to real-life entrepreneurship situations. Given the traditions and contexts of each institution, the

survey shows a wide variety of experiences following two separate models, but with similar lines of development, but above all, these experiences appear more and more territorially (▸ Territory and Entrepreneurship).

An analytical grid to characterize programmes in entrepreneurship

The PIMREP network designed a system of reference to characterize the programs under study, which is built around different "educating situations" in innovation and entrepreneurship programs: awareness raising (involving presentations, testimonies, and introductive conferences), development of students' capacity for initiative (challenges, i.e., individual experiences with little assistance in terms of methodology or theory), training in methods and theories (lessons, seminar), and training in contexts of innovation (implication in entrepreneurship contexts focused on the integration of theoretical and methodological tools through tutoring). The survey consisted in analyzing the schools' degree courses with the following grid: type of teaching situations offered, type of students involved, "weight" in terms of time allotted and credits, and distribution throughout the degree courses. It aimed, on the one hand, to identify trends and typical configurations and, on the other, to identify and describe particularly interesting cases.

The architectural side of the entrepreneurship education

The first observation is that all these schools implement each of the teaching situations identified. Depending on their dominant culture (school of engineering, school of commerce, etc.), and according to other contingency factors (size, composition of the labor pool), the emphasis is placed on some of these teaching situations and, beyond, focuses on the issue of the creation or on the issue of business resumption. In addition, if the trainings in entrepreneurship are always available at each stage of university studies degree, the most ambitious educational activities, also the most demanding educational resources, are mostly related to specific

curricula, as MSc, MBA, or EMBA. In this context, the master program is often called as bank storage for teachings or for case study bound for degree programs and PhD. Another finding is the fact that teaching staff are not only strongly multidisciplinary but consist of a large proportion of entrepreneurs previously or concurrently to their teaching. This proportion varies from significant to exclusive (TU Munich) and goes hand in hand with a changing role of trainers, from the role of teacher, to that of tutor, and up to the role of coach. Some workshops are self-managed by students, teaching staff being there only to guide and to answer questions from students. Please also note this revolution resonates with the emergence and spread of project-based teaching models.

The pedagogical side of the entrepreneurship education

Project-based teachings, i.e., concrete scenarios, real or simulated, based on collaborative or individual learning, greatly resonate to teaching teams. Frequently, on the basis of an original business idea, a gradual approach requires students to identify the major trends of the environment, to prioritize those most likely to have an impact on the development of the idea, and, finally, to explore possible changes or variations. In addition, on many occasions, multidisciplinary approaches (▸ Interdisciplinarity and Innovation) and those claiming to "design thinking", combining empathy and iterative process, were mentioned. However, one important trend is to give a more and more concrete perspective to teachings, in particular through the submission of actual projects by industry that can give rise to an oral assessment with the presence of top managers, also through networking with entrepreneurs from all backgrounds, and through the access to venture capital – simulated or not – of the students projects (▸ Networking Entrepreneurship), which are now major areas of improvement for trainings in entrepreneurship. The corollary is that even if for some training in entrepreneurship, pedagogical considerations dominate, in a growing number of other cases, territorial considerations seem to prevail (bavarian silicon valley in Germany, silicon valley of user-driven innovation in Otaniemi,

Finland, etc.), especially in the context of ▸ Clusters (▸ Innovative Milieux and Entrepreneurship (Volume Entrepreneurship)).

Conclusion and future directions

"Compared to many other disciplines, the discipline of entrepreneurship is in its infancy, with no standard framework or agreed upon best practices for entrepreneurial education" (Solomon 2007). This finding should be reconsidered in the light of the foregoing. Indeed, even if the learning curve for teaching entrepreneurship is still long, it seems clear that the practices of experiential learning are now well established, as well as the "learning by studying" of the early time has been replaced by the "learning by experiencing," the "learning by interacting," or the "learning by doing." New perspectives probably depends on a "territorialization" of the teachings marking a decompartmentalization of entrepreneurship training that yesterday freeing itself from the shackles of traditional disciplines, now probably tends to emancipate itself from the shackles of (higher) education. The challenge is now to articulate this education to all stakeholders that form the ecosystem of the entrepreneur (education and research institutions, national and local policymakers, entrepreneurs, private sector, etc.). Many approaches apprehend this issue, been called for by the United Nations, such asKIC (Knowledge and Innovation Communities) from the EIT (European Institute of Innovation and Technology), or the project PEEPS (Pôle de l'Entrepreneuriat Etudiant Paris Saclay – Paris student entrepreneurship center) carried by the PIMREP network.

Bibliographie

Adcroft, A., Willis R., & Dhaliwal S. (2004), "Missing the point? Management education and entrepreneurship" *Management Decision*, Vol.42, n°3, pp.521-530;

Chaharbaghi, K. & Willis R. (1998), "Beyond entrepreneurship: new market values", *Proceedings High-Technology Small Firms Conference*, Vol.1, Univ. of Twente, June 4-5;

Fiet, J.O. (2000), "The pedagogical side of entrepreneurship theory", *Journal of Business Venturing*, n°16, pp.101-117;

Katz, J.A. (2003), "The chronology and intellectual Trajectory of American Entrepreneuriat Education", *Journal of Business Venturing*, Vol.18, n°2, pp.283-300;

PIMREP (2010), *Former à l'innovation à ParisTech – Effervescence & Perspective*, Livre Blanc ParisTech Tome 1, Décembre, 80 pages;

PIMREP (2012), *Former à l'innovation à ParisTech – Benchmark international*, Livre Blanc ParisTech Tome 2, 131 pages;

Santi M. (2006), "Peut-on enseigner l'entrepreneuriat?", *8ème Biennale de l'éducation et de la formation*, 11 au 14 avril 2006;

Solomon, G.T., Duffy S. & Tarabishy A. (2002), "The State of Entrepreneuriat Education in the United States: a National Wide Survey and Analysis", *International Journal of Entrepreneuriat Education*, Vol.1, n°1, pp.1-22;

Vesper, K.H. (1999), Unfinished business (entrepreneurship) of the 20th century. *Coleman White Paper* (USASBE National Conference, January 1999).